



Worksheet 4 Programming language translators

Task 1

1. Fill in the blanks in the following:

When a program is _____ from source code, the _____ can be saved on disk and executed whenever required.

A / An _____ is useful for program development as parts of the program can be _____ without having to _____ a lengthy program each time. However, a _____ program will generally run faster.

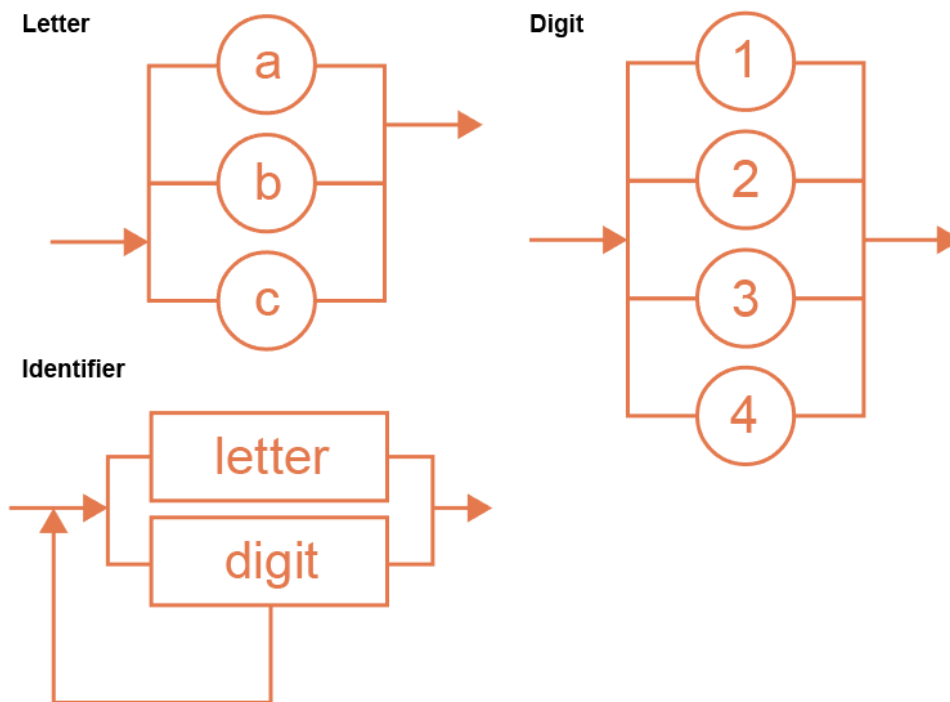
2. If you have written a Python or VB program for one type of computer, can you run it on a different type of computer? Explain.

3. Converting code written in a high level language to bytecode might seem like a redundant process – why not just convert straight to machine code? What do you think the advantages of using a bytecode interpreter might be?



Task 2

Look at the following syntax diagrams which show some of the rules of a language. To read the diagrams, start on the left and follow the arrows.



Are the following sequences valid identifiers in this language?

1. a5
2. d
3. abc
4. 111
5. 42c
6. 8b8
7. 3B



Task 3

Compilers perform code optimisation to make the generated machine code more efficient. How might the compiler optimise the following code?

a) a = 5 b = (a + 240) * 0	
b) value = 0 WHILE value < 100: extra = 20 value = value + extra	
c) temperature = 37 IF temperature < 100: PRINT "OK" ELSE PRINT "Malfunction"	
d) numbers = [] VAT = 0.2 FOR i FROM 1 TO 1000: numbers[i] = i * (2 * VAT)	